REMARKS

This application has been reviewed in light of the Office Action dated February 25, 2004. Claims 1, 3-9, 11-20, 22-28, 30-39, 41-47, and 49-57 are presented for examination, and have been amended to define more clearly what Applicants regard as their invention. Claims 2, 10, 21, 29, 40, and 48 have been canceled, without prejudice or disclaimer of subject matter, and will not be discussed further. Claims 1, 9, 20, 28, 39, and 47 are in independent form. Favorable reconsideration is requested.

Applicants note with appreciation the indication that Claims 3-5, 11-13, 17, 18, 22-24, 30-32, 36, 37, 41-43, 49-51, 55, and 56 would be allowable if rewritten so as not to depend from a rejected claim, and with no change in scope. These claims have not been so rewritten because, for the reasons given below, their base claims are believed to be allowable.

Claims 6, 14, 25, 33, 44 and 52 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

In making the rejection under 35 U.S.C. § 112, first paragraph, the Examiner states that there is no recitation in the specification that the threshold value used for the total number of colors is 8, nor how to perform it.

Applicants respectfully traverse this rejection and submit that there is enabling disclosure for the feature of Claims 6, 14, 25, 33, 44 and 52. In particular, at page 18, line 33, to page 19, line 25, of the present specification, a method of interpolation utilizing local color clamping is described in accordance with an embodiment of the invention. At page, 19, lines 13-17, the present specification describes that:

> the number of colors in the set of 4 by 4 input pixel color values are also counted. If the number of colors in the set is smaller than a certain threshold and if the interpolated output pixel value is larger than the local maximum, then the output value is replaced with the value of the local maximum, at step 813. The preferred threshold is equal to 8, which detects edges adjacent to smooth regions where any ringing artefacts are most visible (emphasis added).

In addition, at page 21, lines 7-9, the present specification states that processes of Figs. 1 to 8 can be implemented as software, such as an application program executing within the computer system 1000.

Accordingly, Applicants submit that Claims 6, 14, 25, 33, 44 and 52 conform fully to the requirements of Section 112, first paragraph, and request the rejection under Section 112, first paragraph, be withdrawn.

Claims 19, 38, and 57 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite.

These claims have been carefully reviewed and amended as deemed necessary to ensure that they conform fully to the requirements of Section 112, second paragraph, with special attention to the points raised in paragraph 5 of the Office Action. It is believed that the rejection under Section 112, second paragraph, has been obviated, and its withdrawal is therefore respectfully requested.

Claims 1, 7, 8, 20, 26, 27, 39, 45, and 46 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,754,710 (*Sekine et al.*), and Claims 9, 15, 16, 19, 28, 34, 35, 38, 47, 53, 54, and 57 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Sekine et al.* and U.S. Patent No. 5,131,057 (*Walowite et al.*).

As shown above, Applicants have amended independent Claims 1, 9, 20, 28, 39, and 47 in terms that more clearly define what they regard as their invention. Applicants submit that these amended independent claims, together with the remaining claims dependent thereon, are patentably distinct from the cited prior art for at least the following reasons.

The aspect of the present invention set forth in Claim 1 is a method of clamping the output values of filtered image data comprising mapping discrete sample values. For each discrete sample value of the mapping the method determines a maximum sample value and a minimum sample value of a plurality of input discrete samples values used to calculate the discrete sample value. The output value of the discrete sample value is clamped to the range of the plurality of input discrete sample values utilizing the maximum and minimum sample values, depending on the number of colors represented by the plurality of input discrete sample values.

Among other important features of Claim 1 is clamping the output value of the discrete sample value to the range of the plurality of input discrete sample values utilizing the maximum sample value and the minimum sample value, depending on the number of colors represented by the plurality of input discrete sample values. That is, as described at page 19, lines 5-23, of the present specification, the local maximum and minimum value of the input pixels in all of the color channels are calculated. At step 811, the number of colors in a set of 4 by 4 input pixel color values are also counted. If the number of colors in the set is smaller than a certain threshold and if the interpolated output pixel value is larger than the local maximum, then the output value is replaced with the value of the local maximum, at step 813. Alternatively, if the number of colors in the set is smaller than the threshold and if the output value calculated is less than the local minimum, then the output value is replaced with the local minimum, at step

817. Otherwise, the output is clamped between the maximum and minimum pixel values for the whole image.[1]

Sekine et al. relates to an image resolution conversion method and apparatus for converting the resolution of a digital image from a first resolution to a second resolution. At column 9, lines 20-59, *Sekine et al.* describes an image processing apparatus performing resolution conversion as shown in Fig. 23. The image processing apparatus comprises a max/min calculation component 4 which calculates the maximum and minimum values of four pixels blocked by a second blocking component 3B. The image processing apparatus also comprises an edge detection component 5 which finds the difference between the maximum and minimum values obtained by the max/min calculation component 4, and performs binary conversion by comparing the difference with a predetermined threshold level. If the difference between maximum and minimum values is larger than the threshold level, the edge detection component 5 outputs a 1 and if the difference is not more than the threshold level, outputs a 0. The threshold level outputs a 1 corresponding to edges where the image data changes sharply.

As further described at column 10, lines 18-34, an AND gate 11 provides a logical AND of the output of a pattern-matching component 10 and the output of the edge detection component 5, which represents the binary conversion result of edge detection value of the difference between the maximum and minimum values in a block of pixels. If the output of the AND gate 11 is 0, a selector 12 selects the result of bi-linear interpolation by a first interpolation component 6 and outputs it to a converted image memory 13, and on the other

[1]It is to be understood, of course, that the claim scope is not limited by the details of the described embodiments, which are referred to only to facilitate explanation.

hand, if the output of the AND gate 11 is 1, the selector 12 selects the result of nearest neighbor interpolation by a second interpolation component 7 and outputs it to the converted image memory 13.

At column 8, lines 31-42, *Sekine et al.* discusses that the resolution process is applied to each color signal of the color image, and to switch interpolation methods if a color image is an RGB image consisting of red, green and blue signals, and the detection of spatial information such as edge detection and pattern-matching is carried out for each of the red, green and blue signals separately. *Sekine et al.* further discusses that in the case where the color image is a YMC image consisting of yellow, magenta and cyan signals or a YMCK image further including a black signal, switching of the interpolation methods is again separately performed for each signal. That is, *Sekine et al.* discusses that the same resolution process is applied to each color signal of the color image no matter what the number of input colour signals.

Applicant submits that nothing has been found in *Sekine et al.* that would teach or suggest clamping the output value of the discrete sample value to the range of the plurality of input discrete sample values utilizing the maximum sample value and the minimum sample value, depending on the number of colors represented by the plurality of input discrete sample values, as recited in Claim 1.

In fact, as described above, *Sekine et al.* discusses that if the difference between maximum and minimum values is larger than the threshold level, an edge detection component (5) outputs a 1 and if the difference is not more than the threshold level, outputs a 0. Further, *Sekine et al.* actually teaches away from the particular claimed feature of Claim 1 of clamping the output value depending on the number of colors represented by the plurality of

input discrete sample values, in that the same resolution process is applied to each color signal of the color image no matter what the number of input color signals.

Independent Claims 20 and 39 are apparatus and computer readable medium claims, respectively, corresponding to method Claim 1, and are believed to be patentable for at least the same reasons as discussed above in connection with Claim 1. Additionally, independent Claims 9, 28, and 47 include a feature similar as to that discussed above in connection with Claim 1. Accordingly, Claims 9, 28, and 47 are believed to be patentable for at least the same reasons as discussed above in connection with Claim 1.

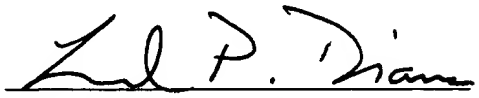
A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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